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AEROSPACE MEDICINE AND BIOLOGY

A CONTINUING BIBLIOGRAPHY WITH INDEXES

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Typical Report Citation and Abstract

❶ **19970001126** NASA Langley Research Center, Hampton, VA USA
❷ **Water Tunnel Flow Visualization Study Through Poststall of 12 Novel Planform Shapes**
❸ Gatlin, Gregory M., NASA Langley Research Center, USA Neuhart, Dan H., Lockheed Engineering and Sciences Co., USA;
❹ Mar. 1996; 130p; In English
❺ Contract(s)/Grant(s): RTOP 505-68-70-04
❻ Report No(s): NASA-TM-4663; NAS 1.15:4663; L-17418; No Copyright; Avail: CASI; A07, Hardcopy; A02, Microfiche
❼ To determine the flow field characteristics of 12 planform geometries, a flow visualization investigation was conducted in the Langley 16- by 24-Inch Water Tunnel. Concepts studied included flat plate representations of diamond wings, twin bodies, double wings, cutout wing configurations, and serrated forebodies. The off-surface flow patterns were identified by injecting colored dyes from the model surface into the free-stream flow. These dyes generally were injected so that the localized vortical flow patterns were visualized. Photographs were obtained for angles of attack ranging from 10’ to 50’, and all investigations were conducted at a test section speed of 0.25 ft per sec. Results from the investigation indicate that the formation of strong vortices on highly swept forebodies can improve poststall lift characteristics; however, the asymmetric bursting of these vortices could produce substantial control problems. A wing cutout was found to significantly alter the position of the forebody vortex on the wing by shifting the vortex inboard. Serrated forebodies were found to effectively generate multiple vortices over the configuration. Vortices from 65’ swept forebody serrations tended to roll together, while vortices from 40’ swept serrations were more effective in generating additional lift caused by their more independent nature.
❽ Author
❾ *Water Tunnel Tests; Flow Visualization; Flow Distribution; Free Flow; Planforms; Wing Profiles; Aerodynamic Configurations*

Key

1. Document ID Number; Corporate Source
2. Title
3. Author(s) and Affiliation(s)
4. Publication Date
5. Contract/Grant Number(s)
6. Report Number(s); Availability and Price Codes
7. Abstract
8. Abstract Author
9. Subject Terms

AEROSPACE MEDICINE AND BIOLOGY

A Continuing Bibliography (Suppl. 480)

DECEMBER 14, 1998

51
LIFE SCIENCES (GENERAL)

19980232218 Massachusetts Inst. of Tech., Cambridge, MA USA

Acoustic Classification of Zooplankton

Traykovski, Linda V.; Feb. 1998; 189p; In English; Prepared in cooperation with MIT/WHOI Joint Program in Oceanogaphy/ Applied Ocean Science and Engineering. Other funding numbers: N00014-92-J-1527, OCE-9201264.

Contract(s)/Grant(s): N00014-89-J-1729; N00014-95-1-0287

Report No.(s): AD-A351049; MIT/WHOI-98-04; No Copyright; Avail: CASI; A09, Hardcopy; A02, Microfiche

This thesis describes the development of both feature based and model based classification techniques to invert broadband acoustic echoes from individual zooplankton for scatterer type, as well as for particular parameters such as animal orientation. The feature based Empirical Orthogonal Function Classifier (EOFC) discriminates scatterer types by identifying characteristic modes of variability in the echo spectra, exploiting only the inherent characteristic structure of the acoustic signatures. The model based Model Parameterisation Classifier (MPC) classifies based on correlation of observed echo spectra with simplified parameterisations of theoretical scattering models for the three classes. The Covariance Mean Variance Classifiers (CMVC) are a set of advanced model based techniques which assign observations to a class based on similarities in covariance, mean, and variance, while accounting for model ambiguity and validity. These feature based and model based inversion techniques were successfully applied to several thousand echoes acquired from broadband (approx. 350 kHz - 750 kHz) insonifications of live zooplankton to determine scatterer class and to invert for angle of orientation using generic and animal-specific theoretical and empirical models. Application of these inversion techniques in situ will allow correct apportionment of backscattered energy to animal biomass, significantly improving estimates of zooplankton biomass based on acoustic surveys.

DTIC

Procedures; Technology Assessment; Acoustic Properties; Echoes; Zooplankton

19980232927 NASA Ames Research Center, Moffett Field, CA USA

Human Physiological Responses to Cycle Ergometer Leg Exercise During +Gz Acceleration

Chou, J. L., San Francisco State Univ., USA; Stad, N. J., San Francisco State Univ., USA; Barnes, P. R., San Francisco State Univ., USA; Leftheriotis, G. P. N., California State Univ., USA; Arndt, N. F., NASA Ames Research Center, USA; Simonson, S., NASA Ames Research Center, USA; Greenleaf, J. E., NASA Ames Research Center, USA; Aug. 1998; 30p; In English

Contract(s)/Grant(s): RTOP 199-20-12

Report No.(s): NASA/TM-1998-112237; A-9811420; NAS 1.15:112237; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

Spaceflight and bed-rest deconditioning decrease maximal oxygen uptake (aerobic power), strength, endurance capacity, and orthostatic tolerance. In addition to extensive use of muscular exercise conditioning as a countermeasure for the reduction in aerobic power (VO(sub 2max)), stimuli from some form of +Gz acceleration conditioning may be necessary to attenuate the orthostatic intolerance component of this deconditioning. Hypothesis: There will be no significant difference in the physiological responses (oxygen uptake, heart rate, ventilation, or respiratory exchange ratio) during supine exercise with moderate +Gz acceleration.

Author

Respiratory Physiology; Physiological Responses; Physical Exercise; Orthostatic Tolerance; Gas Exchange; Ergometers; Bed Rest

19980233235 Dynamac Corp., Cocoa Beach, FL USA

Protocol Development for the NASA-JSC Lunar-Mars Life Support Test Project (LMLSTP) Phase 3 Project: A Report on Baseline Studies at KSC for Continuous Salad Production

Goins, G. D., Dynamac Corp., USA; Yorio, N. C., Dynamac Corp., USA; Vivenzio, H. R., Dynamac Corp., USA; Jul. 1998; 42p; In English

Contract(s)/Grant(s): NAS10-12180

Report No.(s): NASA/TM-1998-207911; NAS 1.15:207911; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

The Phase 3 Lunar-Mars Life Support Test Project (LMLSTP) was conducted in a 20-foot chamber at Johnson Space Center. The overall objective of the Phase 3 project was to conduct a 90-day regenerative life support system test involving 4 human subjects to demonstrate an integrated biological and physicochemical life support system. A secondary objective of the Phase 3 LMLSTP was to demonstrate the ability to produce salad-type vegetable by integration of a small benchtop growth chamber located within the crew habitat area. This small chamber, commercially manufactured as the Controlled Environment Research Ecosystem (CERES 2010(TM)), functioned as a means to continuously provide fresh lettuce crops for crew members. The CERES 2010(TM) growth chamber utilized hardware components developed for effective plant biomass production in space-flight applications. These components included: (1) LED lighting; (2) Astroculture(TM) Root Trays; and (3) Zeoponic media. In planning for the LMLSTP Phase 3, a request was put forward for KSC scientists to generate a protocol for successful continuous planting, culturing, and harvesting of the salad-crop, lettuce. by conducting baseline tests with components of the CERES 2010(TM), a protocol was developed.

Author

Vegetables; Agriculture; Ecosystems; Planting; Vegetation Growth; Closed Ecological Systems; Light Emitting Diodes

19980236900 NASA Marshall Space Flight Center, Huntsville, AL USA

An Overview of NASA Biotechnology

Pusey, Marc L., NASA Marshall Space Flight Center, USA; 1997; 1p; In English; Science and Technology Advisory Council Meeting, 10 Nov. 1997, Huntsville, Alabama, USA; No Copyright; Avail: Issuing Activity; Abstract Only, Hardcopy, Microfiche

Biotechnology research at NASA has comprised three separate areas; cell science and tissue culture, separations methods, and macromolecular crystal growth. This presentation will primarily focus on the macromolecular crystal growth.

Author

Biotechnology; Crystal Growth; Cells (Biology)

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AEROSPACE MEDICINE

Includes physiological factors; biological effects of radiation; and effects of weightlessness on man and animals.

19980232903 Bechtel Hanford, Inc., Richland, WA USA

1997 N-Basin Administrative Control Level Dose Extension

Nellesen, A. L., Bechtel Hanford, Inc., USA; Apr. 1997; 17p; In English

Contract(s)/Grant(s): DE-AC06-93RL-12367

Report No.(s): BHI-01006; DE97-053221; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

This document provides justification for extending the Administrative Control Level of 500 mrem per year to 1,000 mrem per year Total Effective Dose Equivalent for workers involved with N-Reactor Basin Deactivation in accordance with established procedures.

DOE

Dosage; Reactors; Structural Basins

19980235636 NASA Kennedy Space Center, Cocoa Beach, FL USA

Achieving Quality in Occupational Health *Final Report*

O'Donnell, Michele, Editor, Bionetics Corp., USA; Hoffler, G. Wyckliffe, Editor, Bionetics Corp., USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997; 221p; In English; NASA Occupational Health Conference, 4-7 Aug. 1997, Cleveland, OH, USA; Sponsored by NASA Lewis Research Center, USA; Also announced as 19980235637 through 19980235672

Contract(s)/Grant(s): NAS10-12180; RTOP 004-Y3; S-NASA10-001

Report No.(s): NASA/CP-97-206321; NAS 1.55:206321; No Copyright; Avail: CASI; A10, Hardcopy; A03, Microfiche

The conference convened approximately 100 registered participants of invited guest speakers, NASA presenters, and a broad spectrum of the Occupational Health disciplines representing NASA Headquarters and all NASA Field Centers. Centered on the theme, "Achieving Quality in Occupational Health," conferees heard presentations from award winning occupational health program professionals within the Agency and from private industry; updates on ISO 9000 status, quality assurance, and information technologies; workshops on ergonomics and respiratory protection; an overview from the newly commissioned NASA Occupational Health Assessment Team; and a keynote speech on improving women's health. In addition, NASA occupational health specialists presented 24 poster sessions and oral deliveries on various aspects of current practice at their field centers.

Author

Conferences; Occupation; Health; Human Factors Engineering; Quality Control; Medical Services

19980235637 Hummer Associates, Whole Health Management, Cleveland, OH USA

Striving for Quality at a NASA Occupational Health Clinic: The Experiences of a 1996 George M. Low Award Recipient

Weirich, Stephen A., Hummer Associates, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 4-14; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A03, Hardcopy; A03, Microfiche

An overview of the Occupational Health Clinic at NASA LeRC is presented. Specific topics include: 1) Hummer Associates philosophy statement; 2) The Disney keys to success. What does this have to do with quality health care?; 3) Utilization of the medical services clinic at NASA LeRC; 4) NASA LeRC civil servant population; 5) Civil servant office visits per civil servant head count; 6) Work related vs. non-work related visits; 7) Unique aspects of LeRC clinic; 8) Fitness center used as an adjunct to medical treatment; 9) Health insurance plans; 10) Insurance billing and the how-to's; 11) Low Award criteria; 12) Low Award lessons learned; and 13) Hummer Associates goals.

CASI

Occupation; Health; Medical Services; Clinical Medicine

19980235638 Michigan Univ., School of Public Health, Ann Arbor, MI USA

A New Career for Industrial Hygienists and Safety Engineers at NASA or, What's All the Fuss About ISO-Harmonized Management Systems

Levine, Steven, Michigan Univ., USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 15-26; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A03, Hardcopy; A03, Microfiche

Two questions regarding the Industrial Hygiene and safety professionals at NASA are considered: 1) Who is actually doing OHSMS and what are their experiences?; and 2) How will this approach affect the profession and practice of industrial hygiene?. Also, the following topics are presented in slide presentation form: 1) Why discuss international E&OHS standards?; 2) What is meant by ISO-harmonized standards? 3) The AIHA OHS management system - The Liberty International Auditor; and 4) The Michigan "Universal" System.

Derived from text

Occupation; Health; Management Systems; Industrial Safety

19980235639 Joint Commission on Accreditation of Healthcare Organizations, Seattle, WA USA

Still More in the "Alphabet Soup" of Quality

Roling, Gerald, Joint Commission on Accreditation of Healthcare Organizations, USA; Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 27-37; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A03, Hardcopy; A03, Microfiche

The title of the presentation speaks to my frustrations over the past 37 years of practicing medicine in many settings, in many locations, under many different leaders going in many directions as we attempted to follow the various acronyms depicting the various stages in the Quality movement. QA, QI, TQM, etc, etc. -what are the "in" code letters or names this year or next! I hope in my paper to attempt to pull these historical and functional terms together and demonstrate practical examples that I have seen of quality programs as I do accreditation surveys throughout all types of healthcare settings.

Derived from text

Quality Control; Total Quality Management; Medical Services

19980235640 Lockheed Martin Energy Systems, Inc., Oak Ridge, TN USA

Quality Cost-Effective Occupational Health Programs: A Winning Example

Jones, O. W., Lockheed Martin Energy Systems, Inc., USA; Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 38-43; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A02, Hardcopy; A03, Microfiche

The following topics are considered in detail relating to Lockheed Martin's health care program and ACOEM standards: (1) Employee health evaluation and screening program; (2) Process and procedures to diagnose and treat injury or illness occurring on the job and assist employees' return to work; (3) Drug and alcohol policy, drug screening, insurance coverage for treatment and rehabilitation, and employee assistance programs; (4) Programs in place to provide treatment for emergency conditions not work related, including emotional crisis; (5) Immunizations against infectious disease for at-risk populations, protection against blood-borne pathogens and provision of travel advice; and (6) Programs to provide collaborative care to employees under the care of a personal health care provider so as to reduce the amount of time away from the job for treatment.

CASI

Occupation; Public Health; Medical Services; Standards; Clinical Medicine

19980235641 Lilly (Eli) and Co., Lilly Corporate Center, Indianapolis, IN USA

Leveraging Employer Assets for Improved Health Services

Larkin, Gregory, Lilly (Eli) and Co., USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 44-50; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A02, Hardcopy; A03, Microfiche

The paper focuses on the following topics and goals: (1) Recognize customer's perspective of services and align scope accordingly; (2) Partner with management to leverage all aspects of EHS which include: expertise (occupational & preventive medical specialists), location (on-site, minimal barriers for care), volume (existing, accessible "customer" market), and community presence (strength in numbers and status); (3) Target interventions which: significantly impact the "bottom line"- health costs & productivity, have demonstrated effect, and best utilize company assets.

Derived from text

Public Health; Clinical Medicine; Medical Services

19980235642 NASA Lewis Research Center, Cleveland, OH USA

Engineering Aspects in Blood Pump Development

Golding, Leonard, Cleveland Clinic Foundation, USA; Veres, Joseph P., NASA Lewis Research Center, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 51-55; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

NASA turbomachinery computer codes assisted in the design of the Cleveland Clinic Foundation's centrifugal bladed blood pump. The codes were originally developed for the aerospace industry, but are applicable to the blood pump because of a high degree of synergy with this application. Traditional turbomachinery design criteria were used in the design of the blood pump centrifugal impeller and volute casing. The fluid dynamic performance of the blood pump is meeting the engineering design goals of flow rate and pressure rise.

Derived from text

Blood Pumps; Centrifugal Pumps; Pump Impellers; Bioengineering

19980235643 Air Force School of Aerospace Medicine, Brooks AFB, TX USA

Using Information Technologies to Drive Quality in Occupational Health

Gordon, Scott R., Air Force School of Aerospace Medicine, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 56-66; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A03, Hardcopy; A03, Microfiche

Information technologies are revolutionizing the way business is conducted around the world in almost every occupation. As we rapidly approach the millennium, this evolution of information technologies, and our greatly improved ability to handle, store, and analyze information, lends itself to major quality improvements in almost every facet of what we do in Occupational Health. The following topics are considered: (1) Evolution of information technologies; (2) Advantages of information technologies; (3) Measures of quality in occupational health; and (4) Air Force approach to quality.

Derived from text

Information Management; Quality Control; Public Health; Medical Services

19980235644 Department of Health and Human Services, US Public Health Service's Office on Women's Health, Washington, DC USA

A New Prescription to Improve Women's Health

Mark, Saralyn, Department of Health and Human Services, USA; Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 68-72; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

In my remarks, I will discuss the long history of inequities that women have faced in their health care as well as the new forces and trends which are finally changing this tragic situation. I will also focus on how advances in imaging and telemedicine and the innovative partnerships with the intelligence, defense, space and medical communities are serving as critical elements in our new prescription to improve women's health.

Derived from text

Females; Public Health; Medical Services; Technology Utilization

19980235645 National Inst. for Occupational Safety and Health, Health Hazard Evaluation (HHE) Program, Cincinnati, OH USA

Ergonomics

Hales, Thomas, National Inst. for Occupational Safety and Health, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 74-76; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

Ergonomics is from the Greek words ergos, meaning "work" and nomos, meaning "laws"- therefore, the laws of work. It was coined in the 19th century by a Polish scientist Wojciech Jastrzebowski for the study of work. More recently it has been defined as "fitting the job to the worker" thereby accommodating the various sizes and shapes of individuals. In a broader context, ergonomics is the art of matching work demands with worker capabilities. When a mismatch between work demands and workers' capabilities occurs, psychosocial stress (low job satisfaction, low productivity), and/or musculoskeletal disorders can result. Human factors specialists traditionally focus on these psychosocial stress issues, while the ergonomists traditionally focus on the engineering/physical factors and their effect on the musculoskeletal system. Musculoskeletal disorders (MSD) are conditions of the soft tissues and their surrounding structures not resulting from an acute or instantaneous event (e.g., slips or falls). In the epidemiologic literature, MSD can be grouped as: Clinically well-defined disorders (such as tendinitis, carpal tunnel syndrome); Less clinically well-defined disorders (such as tension neck syndrome); Non-specific disorders (such as repetitive strain injury (RSI), overuse syndrome, and cervicobrachial disorders). This confusion over terminology and case definitions has had a dramatic impact on the recognition, reporting, surveillance, and individual diagnoses of these disorders. Risk factors relating to MSD and details of the ergonomics program are included.

Derived from text

Human Factors Engineering; Musculoskeletal System; Medical Services; Management Systems; Public Health

19980235646 Minnesota Mining and Mfg. Co., Occupational Health and Environmental Safety Div., Saint Paul, MN USA

Respiratory Protection

Colton, Craig E., Minnesota Mining and Mfg. Co., USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 77-97; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A03, Hardcopy; A03, Microfiche

OSHA has been working to revise rule 29 CFR 1910.134 for some time. This presentation reports on the proposal as published in the Federal Register. There are expectations that change has been made to the proposed rule. Asterisks identify those areas I believe to be changed either because of what OSHA has published in recent rules and letters or word on the "street".

Derived from text

Respirators; Safety Devices; Breathing Apparatus; Policies; Regulations

19980235647 Bionetics Corp., Cocoa Beach, FL USA

An Overview of the NASA Occupational Health Assessment Team Report

Ferguson, Emmett B., Bionetics Corp., USA; Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 99-105; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A02, Hardcopy; A03, Microfiche

This assessment was undertaken to achieve the following objectives: (1) Document the status of the Occupational Health Program (0HP) at the NASA Field Centers; (2) Determine the Field Center OHP needs and expectations of the Agency OHP function; (3) Identify "Best Practices" which should be considered for Agency-wide use; (4) Identify individuals among the NASA Civil Service and Contractor work force who, because of special training, experience and accomplishments, may represent resources for expert consultation for the Agency-wide OHP; (5) Review the metrics collected at the Field Center OHPs, and the realistic needs for quality evaluation of the OHP at both the Field Center and Agency level; and (6) Provide recommendations and rationale

for the incoming Agency OHP Manager regarding Program direction and implementation. We believe it essential that our report present not only an objective appraisal of the existing Field Center Occupational Health Program, but define what we believe a comprehensive OHP should provide. This must be stated in a manner that will get attention at the highest level reviewing the report. We believe that the purpose of the OHP can be very simply stated. The purpose is to maintain a healthy, productive workforce and prevent workplace illnesses and injuries.
Derived from text
Occupation; Public Health; NASA Programs; Assessments; Clinical Medicine; Accident Prevention

19980235648 NASA, Washington, DC USA
Health Risk Appraisal Use at Headquarters
Borcherding, Donald, NASA, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 108-111; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

Specific topics which relate to the NASA Health Risk Appraisal (HRA) include: (1) What is a HRA?; (2) Risk factors; (3) Program use at NASA Headquarters; (4) An alternative approach; (5) Group HRA reports; and (6) Future considerations and conclusion.
CASI
Occupation; Health; Risk; Assessments; NASA Programs; Medical Services

19980235649 Science Applications International Corp., Moffett Field, CA USA
Industrial Hygiene Evaluation of Airborne Microbial Contamination
Phillips, Stanleigh W., Science Applications International Corp., USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 112-122; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A03, Hardcopy; A03, Microfiche

An Anderson N6 sampler was used to obtain samples to evaluate airborne levels of bacteria and fungi in response to an employee concern that the flooding of basement offices produced potentially hazardous conditions. Guidelines (AIHA, ACGIH) for interpretation of the air sample results were applied. Published literature documenting indoor/outdoor ratios of fungi were reviewed. Published guidelines for remediation of building structures contaminated with Stachybotrys atra were modified to address the site-specific conditions. Recommendations for industrial hygienists who may be involved in the assessment of microbial contamination of buildings are provided.
Derived from text
Buildings; Contamination; Industrial Safety; Air Sampling; Fungi; Bacteria

19980235650 Kelsey Seybold, Moffett Field, CA USA
An Occupational Tuberculosis Surveillance Program
Brown, Barbara, Kelsey Seybold, USA; Meyers, John, Kelsey Seybold, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 123-124; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

After a decades-long decrease from 1953 through 1984 in the number of tuberculosis (TB) cases reported annually in the USA, TB has reemerged as a serious national problem. From 1985 through 1993, the number of new TB cases increased by 14% - from 22,201 to 25,313. During this period, approximately 64,000 more cases were reported than would have been predicted from the trend of decline from 1980 through 1984. The major factors contributing to this recent increase are: 1) the association of TB with the HIV epidemic; 2) immigration from countries where TB is common; 3) the transmission of TB in congregate settings (e.g., health care facilities, correctional facilities, homeless shelters); and 4) a deterioration of the health care infrastructure.
Author
Occupation; Public Health; Tuberculosis; Surveillance

19980235651 NASA Dryden Flight Research Center, Edwards, CA USA
Dryden Flight Research Center Chemical Pharmacy Program
Davis, Bette, NASA Dryden Flight Research Center, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 125; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche; Abstract Only; Abstract Only

The Dryden Flight Research Center (DFRC) Chemical Pharmacy ”Crib” is a chemical sharing system which loans chemicals to users, rather than issuing them or having each individual organization or group purchasing the chemicals. This cooperative sys-

tem of sharing chemicals eliminates multiple ownership of the same chemicals and also eliminates stockpiles. Chemical management duties are eliminated for each of the participating organizations. The chemical storage issues, hazards and responsibilities are eliminated. The system also ensures safe storage of chemicals and proper disposal practices. The purpose of this program is to reduce the total releases and transfers of toxic chemicals. The initial cost of the program to DFRC was $585,000. A savings of $69,000 per year has been estimated for the Center. This savings includes the reduced costs in purchasing, disposal and chemical inventory/storage responsibilities. DFRC has chemicals stored in 47 buildings and at 289 locations. When the program is fully implemented throughout the Center, there will be three chemical locations at this facility. The benefits of this program are the elimination of chemical management duties; elimination of the hazard associated with chemical storage; elimination of stockpiles; assurance of safe storage; assurance of proper disposal practices; assurance of a safer workplace; and more accurate emissions reports.
Author
Chemicals; Cost Reduction; Government/Industry Relations; Hazardous Materials

19980235652 NASA Dryden Flight Research Center, Edwards, CA USA
Effective Documentation Tools
Sleboda, Claire, NASA Dryden Flight Research Center, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 126-128; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

Quality assurance programs provide a very effective means to monitor and evaluate medical care. Quality assurance involves: (1) Identify a problem; (2) Determine the source and nature of the problem; (3) Develop policies and methods to effect improvement; (4) Implement those polices; (5) Monitor the methods applied; and (6) Evaluate their effectiveness. Because this definition of quality assurance so closely resembles the Nursing Process, the health unit staff was able to use their knowledge of the nursing process to develop many forms which improve the quality of patient care. These forms include the NASA DFRC Service Report, the occupational injury form (Incident Report), the patient survey (Pre-hospital Evaluation/Care Report), the Laboratory Log Sheet, the 911 Run Sheet, and the Patient Assessment Stamp. Examples and steps which are followed to generate these reports are described.
Derived from text
Documentation; Case Histories; Public Health; Clinical Medicine

19980235653 NASA Goddard Space Flight Center, Greenbelt, MD USA
Development of a Pamphlet Targeting Computer Workstation Ergonomics
Faraci, Jennifer S., NASA Goddard Space Flight Center, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 129-131; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

With the increased use of computers throughout Goddard Space Flight Center, the Industrial Hygiene Office (IHO) has observed a growing trend in the number of health complaints attributed to poor computer workstation setup. A majority of the complaints has centered around musculoskeletal symptoms, including numbness, pain, and tingling in the upper extremities, shoulders, and neck. Eye strain and headaches have also been reported. In some cases, these symptoms can lead to chronic conditions such as repetitive strain injuries (RSI's). In an effort to prevent or minimize the frequency of these symptoms among the GSFC population, the IHO conducts individual ergonomic workstation evaluations and ergonomics training classes upon request. Because of the extensive number of computer workstations at GSFC, and the limited amount of manpower which the Industrial Hygiene staff could reasonably allocate to conduct workstation evaluations and employee training, a pamphlet was developed with a two-fold purpose: (1) to educate the GSFC population about the importance of ergonomically-correct computer workstation setup and the potential effects of a poorly configured workstation; and (2) to enable employees to perform a general assessment of their own workstations and make any necessary modifications for proper setup.
Author
Human Factors Engineering; Workstations; Public Health; Personnel; Documentation

19980235654 Meridian Occupational Healthcare Associates, Greenbelt, MD USA
The Employee Assistance Program Collaborates on the Development of an Internal Web Page for the GSFC Workforce
Humphrey, Marian T., Meridian Occupational Healthcare Associates, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 132-133; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

The Employee Assistance Program (EAP) continuously seeks more effective methods of promoting the wellness message of the Occupational Health Program. This year the opportunity presented itself to assist in the development of an internal Web page which could be accessed by GSFC employees from their desktop stations. The contributors to this effort were the Career Counselor, the EAP Counselor, and the GSFC Workforce Project Coordinator. The goal was to create a central location from which employees could obtain relevant information related to the changing needs of the Goddard mission. Another aspect of this effort was an attempt to integrate as much information as possible on the issues related to change and its impact on the workforce in a central location. The method selected was the use of hyperlinks to other Federal and private Web pages. The EAP of course, focused on materials relevant to mental health, balancing work and family, and stress management.
Author
Personnel; Occupation; Health; World Wide Web; Information Transfer

19980235655 National Health Services, Inc., Greenbelt, MD USA
Interim Measures for Neutron Radiation Dosimetry
Simmons, Theodore D., II, National Health Services, Inc., USA; Blanchard, Tad M., National Health Services, Inc., USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 134-136; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

The Near-Earth Asteroid Rendezvous (NEAR) spacecraft will be the first to orbit an asteroid and perform detailed analysis of its composition. Launched in February 1996 NEAR will rendezvous with the asteroid ”433 Eros” in January 1999 followed by a one year data-taking operation. A very important on-board remote sensing instrument for determining elemental abundance is the Gamma Ray Spectrometer. This instrument will detect gamma rays produced by natural radioactivity as well as those produced by neutron inelastic collision and neutron capture. to facilitate experiments that simulate part of the expected neutron/gamma ray process at Eros, Goddard purchased a 370 Megabequerel (10 millicurie) Californium-252 neutron emitter. Gamma ray spectral data will be used to calibrate the Gamma Ray Spectrometer as well as confirm instrument performance. to accurately document personnel radiation exposures, a laboratory entry log was developed for the scientists to record the dates, times and associated individual exposures. The GSFC Health Physics Office instructed project scientists to use the ”Integration” mode on the E-600 in order to accumulate ”real-time” exposure data. Although not calibrated for this type of exposure, project scientists were still required to wear their regular TLD badges. While results reported by the TLDs were ”high” (approximately 10 times too high), the Radiation Protection Officer will make the appropriate corrections to the individual TLD exposure data to reflect the actual dosage received by the scientists. This interim dosimetry measure is just one example of how personnel safety can be maintained without significantly impacting mission critical work of the GSFC scientific community. The Radiation Protection Program at Goddard continuously strives to improve the support given to GSFC science and engineering projects by providing timely solutions that enhance personnel safety in the workplace.
Derived from text
Threshold Detectors (Dosimeters); Radiation Dosage; Radiation Measurement; Neutron Counters; Industrial Safety

19980235656 NASA Johnson Space Center, Houston, TX USA
Emergency Operations Center at Johnson Space Center
Caylor, Gary C., NASA Johnson Space Center, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 137; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche; Abstract Only; Abstract Only

In June 1966, at the start of the Gulf Coast hurricane season, the Johnson Space Center (JSC) celebrated the opening of its new 4,000-square foot, state-of-the-art Emergency Operations Center (EOC). The new EOC has been upgraded and enhanced to support a wide spectrum of emergencies affecting JSC and neighboring communities. One of the main features of the EOC is its premier computerized dispatch center. The new system unites many of JSC’s critical emergency functions into one integrated network. It automatically monitors fire alarms, security entrances, and external cameras. It contains the JSC inventory of hazardous materials, by building and room, and can call up Material Safety Data Sheets for most of the generic hazardous materials used on-site. The EOC is available for community use during area emergencies such as hurricanes and is a welcome addition to the Clear Lake/Galveston Bay Area communities’ emergency response resources.
Author
Emergencies; Warning Systems; Monitors; Safety

19980235657 Kelsey Seybold, Houston, TX USA
Ergonomics Program at Johnson Space Center
Goldberg, Sheilla, Kelsey Seybold, USA; Licatino, Jody, Kelsey Seybold, USA; Proceeding from the 1997 NASA Occupational

Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 138-142; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

In recent years, there has been a dramatic increase in the occurrence of work-related illnesses arising from repeated biomechanical stress due to ergonomics hazards. These disorders are known under a variety of names: cumulative trauma disorders (CTDs), work-related musculoskeletal disorders (WMDs), repetitive motion injuries (RMIs), and repetitive stress disorders (RSDs), to name a few. JSC has sought to address these problems aggressively by developing an ergonomics program designed to minimize or eliminate ergonomics risk factors. This program utilizes medical diagnoses and treatment of CTDs, evaluation of personal workstations to determine ergonomics risk factors, identification of design principles that prevent employees' exposure to ergonomics risk factors, education and training, increased availability of ergonomics accessories, and assistance to supervisors and facility managers in obtaining needed equipment.

Author

Human Factors Engineering; Musculoskeletal System; Injuries; Personnel; Workstations

19980235658 Kelsey Seybold, Houston, TX USA

Longitudinal Assessment of 10-Year Weight Change in a Large Federal Workforce

Wier, Larry T., Kelsey Seybold, USA; Jackson, Andrew S., Houston Univ., USA; Ayers, Greta W., Kelsey Seybold, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 143-149; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A02, Hardcopy; A03, Microfiche

Cross-sectional (CS) national surveys showed the average American is approximately 7.9 lb heavier than 1O yrs ago. The purpose of this study was to compare 10-yr CS changes in weight in a large federal workforce and to assess the longitudinal (LG) influence of weight gain on medical exam variables (MEV): blood pressure (SBP,DBP), total blood cholesterol (TC), HDL- cholesterol (HDL-C), TC/HDL-C ratio, LDL-cholesterol (LDL-C), glucose, and triglycerides. CS comparisons were made on 2543 employees (80% men) medically examined in 1982-83 and 3640 employees (69% men) examined in 1992-93. LG subjects were 1229 employees (83% men) examined first in the 1982-83 year (T1) and again 10 yrs later (T2). ANOVA of CS showed no age difference between the 10-yr groups but the mean body weight in 92-93 was significantly (P<0.001 higher by 5.5+/4.2 lb in men and 8.4 +/- 4.2 lb in women, and there were significant differences in DBP, glucose, triglycerides, and TC/HDL-C. ANOVA of LG showed a significant (P<0.001)gain in weight (men8.6/- 14.5 lb, women 15.6 +/- 19.8 lb), and changes in MEV except glucose. Simple regression showed weight change was linearly related (P<0.01)toallLGMEV.Multiplergression showed that at least 50% of the variance in T2 TC, HDL-C, and TC/HDL-C could be explained by T1 values and independent changes in weight. Analyses of exercise data on 171 LG subjects who were enrolled in the JSC Health-Related Fitness Program during the 1O yr period showed they gained less weight than non-participants and their weight change was related to the level of program participation and the average amount of physical activity over time. Results demonstrated weight change should be considered when assessing changes in MEV. (<0.001) higher by 5.5+/.

Author

Public Health; Personnel; Body Weight; Age Factor; Human Beings

19980235659 University of South Florida, Coll. of Medicine, Tampa, FL USA

Enhancing an Occupational Medicine Residency Program with a Practicum at an Operational Space Center

Francois, Rony, University of South Florida, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 150-152; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

The University of South Florida (USF) College of Public Health was established by the Florida Legislature in 1984 to train public health professionals. As one of only 28 public health colleges in the nation, it offers a variety of programs, including Health Policy and Management, Environmental and Occupational Health, Epidemiology and Biostatistics, and Community and Family Health. In addition, the National Institute for Occupational Safety & Health (NIOSH) recently announced the creation of an Educational Resource Center (ERC) at USF. This ERC is the first one funded in 20 years, with an allocation of $1.6 million over the next five years. The Department of Internal Medicine offers a two-year residency program in Occupational Medicine, in conjunction with the Department of Environmental & Occupational Health. The residency program, chaired by Stuart M. Brooks, M.D., is accredited by the Accreditation Council for Graduate Medical Education. Its mission is to prepare physicians for careers in Occupational Medicine. These career opportunities include the practice of Occupational Medicine in an industrial setting, with emphasis on medical surveillance, acute patient care, and the prevention of occupational health disorders; the administration and management of occupational health programs; the development and management of governmental programs which may be

required by law; and teaching and research in an academic setting. The report presents brief program descriptions of the academic program, practicum rotations, Kennedy Space Center's involvement, occupational medicine and environmental health.
Author
Occupation; Health; NASA Programs; University Program; Clinical Medicine

19980235660 Edgerton, Germeshausen and Grier, Inc., Cocoa Beach, FL USA
Kennedy Space Center Health Education and Wellness Program: Evaluation of Cardiovascular Screening Retest for High Risk Employees
Roth, Carol A., Edgerton, Germeshausen and Grier, Inc., USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 153-155; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

The Kennedy Space Center (KSC) Health Education and Wellness Program, initiated in 1984, is open to all employees at KSC and Cape Canaveral Air Station(CCAS) at no charge. The goal of the program is to make employees more aware of their health and to screen for early detection of health problems. This is achieved through training classes, work site lectures, health screenings, informational health packets, individual counseling, pamphlets and videotapes. Every month a different health program is featured on a wide variety of topics. Prevention is the focus of the program. It is based on four principles: 1) Educate employees about their bodies and healthy lifestyles; 2) Help employees identify present problems and risk factors for potential problems; 3) Assist employees in the reduction or elimination of risk factors; and 4) Support employees in maintaining their healthy lifestyle through monitoring and evaluation. These concepts are detailed in the report.
Derived from text
NASA Programs; Health; Education; Personnel; Cardiovascular System

19980235662 NASA Kennedy Space Center, Cocoa Beach, FL USA
NASA Worldwide Emergency Medical Assistance
Martin, George A., NASA Kennedy Space Center, USA; Tipton, David A., NASA Kennedy Space Center, USA; Long, Irene D., NASA Kennedy Space Center, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 161-165; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

In an effort to maintain employee health and welfare, ensure customer satisfaction, and to deliver high quality emergency medical care when necessary to employees located overseas, NASA has instituted a new contract with International SOS Assistance INC. International SOS Assistance INC. will provide civil servants and contractors engaged in official NASA business with many services upon request during a medical or personal emergency. Through the years, International SOS Assistance INC. has developed the expertise necessary to provide medical service in all remote areas of the world. One phone call connects you to the SOS network of multilingual staff trained to help resolve travel, medical, legal, and security problems. The SOS network of critical care and aeromedical specialists operates 24 hours a day, 365 days a year from SOS Alarm Centers around the world. This exhibit illustrates the details of the NASA-International SOS Assistance INC. agreement.
Author
Medical Services; Emergencies; Contract Negotiation

19980235663 Hummer Associates, Occupational Medicine Services and Fitness Center, Cleveland, OH USA
Assessing the Wellness of NASA LeRC Employees: The First Step Toward the Development of a Pragmatic Wellness Program
Krejci, Lisa E., Hummer Associates, USA; Weirich, Stephen A., Hummer Associates, USA; Miller, Ellen C., Hummer Associates, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 166-168; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

By living a healthful lifestyle, much can be done to prevent serious illness and premature death. Recently the US Taskforce on Disease Prevention and Health Promotion delivered a report to the health care providers of the nation. They stated that "the most effective interventions available to clinicians for reducing incidence of disease and disability in the USA are those that address the personal health practices of patients". The result of the task force was the development of Healthy People 2000 (HP 2000): National Health Promotion and Disease Prevention objectives (US Department of Health and Human Services, Public Health Service 1991). The three main goals of HP 2000 are to: 1) Increase the span of healthy life for Americans; 2) Reduce health disparities among Americans; and 3) Achieve access to preventive services for all Americans. There are 22 priority areas with measurable targets within the objectives. These objectives make up the basis for providing health risk appraisals in agencies and health care settings throughout the USA. Hummer Associates conducted a Health Risk Appraisal at NASA Lewis Research Center

LERC to assess health risks in comparison to HP 2000 guidelines and to determine educational opportunities for program enhancement.
Author
Prevention; Public Health; Sicknesses; Medical Services; Patients

19980235669 Hummer Associates, Fitness Center, Cleveland, OH USA
Slimathon Incentive Weight Loss Program
Large, Wendy D., Hummer Associates, USA; Hofstetter, David H., Hummer Associates, USA; Krejci, Lisa E., Hummer Associates, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 182-185; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

The Slimathon Contest was established in 1990 with two objectives; to educate the participants about the importance of body composition, not just body weight, and to increase fitness center utilization. This incentive program was open to all NASA employees, on-site contractors and retirees. The Fitness Center sponsored the incentive program and the Fitness staff measured the weight and percentage of body fat, scheduled appointments and sent statistics to all participants. The duration of the contest was 14 weeks. The contest emphasized lifestyle modification. The Slimathon incentive program successfully accomplished its intended purpose. Body fat was lost by the majority of the subjects. Lifestyle modifications were brought about through education. The contest instilled ongoing fitness participation. During the Slimathon contest the fitness center's utilization increased as well as its total membership. In addition, class participation was at an all time high.
Derived from text
Body Weight; Personnel; Weight Reduction; Health

19980236137 Naval Health Research Center, San Diego, CA USA
An Evaluation of the Clinical Effectiveness of Telemedicine Medical Providers' Perspective ***Interim Report***
Larson, G. E.; Burr, R. G.; Pearsall, D. M.; Silva, J.; May 1998; 16p; In English
Report No.(s): AD-A351912; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

Despite the growing use of telemedicine technology in civilian and military health care, relatively little work has been performed in the area of evaluation. to address this deficiency, a preliminary set of telemedicine evaluation instruments (primarily surveys) was developed and pilot tested. Surveys for health care providers were administered aboard three Navy carrier groups and one remote shore station. A separate questionnaire, designed for the medical specialist consultants who were contacted via telecommunications, was administered at the consultant sites. Results suggest that providers view telemedicine as a highly effective tool, and that telemedicine consultations have their greatest impact on treatment (as opposed to diagnosis). The usefulness of "basic" telemedicine technologies, such as telephone and e-mail was strongly supported.
DTIC
Health; Telemedicine; Evaluation; Effectiveness; Armed Forces

19980236413 China Nuclear Information Centre, Beijing, China
Fluorescence microscopic and microautoradiographic studies on apoptosis of bone tumor cells induced by Sm-EDTMP-153
Zhu Shoupeng, Suzhou Medical Coll., China; Xiao Dong, Suzhou Medical Coll., China; Han Xiaofeng, Suzhou Medical Coll., China; Sep. 1997; 11p; In English
Report No.(s): CNIC-01189; SMC-0138.; DE98-604606; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

The apoptosis of bone tumor cells treated with internal irradiation by Sm-EDTMP-153 was studied. The morphological changes in bone tumor cells were observed by fluorescence microscopic and microautoradiographic observations. It was found that bone tumor cells internally irradiated with Sm-EDTMP-153, displayed significant nuclear fragmentation and marked pyknosis as well as apoptotic bodies formation. The microautoradiographic study showed that Sm-EDTMP-153 could permeate through cell membrane and displayed membrane-seeking condensation in tumor cells. Soon afterwards Sm-EDTMP-153 could be phagocytized by the tumor cells and distributed in cytoplasm and nucleus in the form of phagosome. With the prolongation of observing time, the membrane-bounded apoptotic bodies was observed. With the lengthening of internal irradiation time by Sm-EDTMP-153, the inhibition rate of proliferation of bone tumor cells increased progressively.
DOE
Fluorescence; Bones; Tumors; Cells (Biology); Samarium; Microscopes

19980236414 International Atomic Energy Agency, Vienna, Austria

Radiation protection ***Proteccion Radiologica***

Ures Pantazi, M., Universidad de la Republica, Uruguay; 1994; 24p; In Spanish; Regional Training Course on the Practice of the Hospital Radiopharmacy, 13 Jun. - 1 Jul. 1994, Montevideo, Uruguay

Report No.(s): INIS-UY-005; CONF-9406419; DE98-604902; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

This work define procedures and controls about ionizing radiations. Between some definitions it found the following topics: radiation dose, risk, biological effects, international radioprotection bodies, workers exposure, accidental exposure, emergencies and radiation protection.

DOE

Radiation Protection; Radiation Effects; Ionizing Radiation

19980236419 Brown Univ., Dept. of Pathology, Providence, RI USA

Tissue-Engineered Skeletal Muscle Organoids for Reversible Gene Therapy

Vandenburgh, Herman, Brown Univ., USA; DelTatto, Michael, Brown Univ., USA; Shansky, Janet, Brown Univ., USA; Lemaire, Julie, Brown Univ., USA; Chang, Albert, Brown Univ., USA; Payumo, Francis, Brown Univ., USA; Lee, Peter, Brown Univ., USA; Goodyear, Amy, Brown Univ., USA; Raven, Latasha, Brown Univ., USA; Human Gene Therapy; Nov. 10, 1996; Volume 7, pp. 2195-2200; In English

Contract(s)/Grant(s): NAG2-914; NAGw-4674

Report No.(s): NASA/CR-1996-207803; NAS 1.26:207803; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

Genetically modified murine skeletal myoblasts were tissue engineered in vitro into organ-like structures (organoids) containing only postmitotic myofibers secreting pharmacological levels of recombinant human growth hormone (rhGH). Subcutaneous organoid Implantation under tension led to the rapid and stable appearance of physiological sera levels of rhGH for up to 12 weeks, whereas surgical removal led to its rapid disappearance. Reversible delivery of bioactive compounds from postimtotic cells in tissue engineered organs has several advantages over other forms of muscle gene therapy.

Author

Musculoskeletal System; Pituitary Hormones; Muscles; Cells (Biology); Genes; Therapy

19980236457 Oesterreichisches Forschungszentrum Seibersdorf G.m.b.H., Seibersdorf, Austria

10 years after Chernobyl, radiation exposure, health effects, safety aspects ***10 Jahre nach Tschernobyl, Strahlenbelastung, Gesundheitseffekte, Sicherheitsaspekte***

Mueck, K., Oesterreichisches Forschungszentrum Seibersdorf G.m.b.H., Austria; Nov. 1996; ISSN 0253-5270; 49p; In German

Report No.(s): OEFZS-4785; DE98-604903; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

This report sums up the various conferences and symposia which were prompted by the tenth anniversary of the accident in the nuclear power plant of Chernobyl. It was shown that by the accident up to now 31 casualties among the emergency and rescue personal at the site. Offsite no increased number of casualties caused by the accident was observed up to now. In the countries with the highest impact Ukraine, Belarus and Russia, however, an increased number of infant thyroid cancer is observed which is substantially higher than after the nuclear detonations over Japanese cities. Contrary to often published media reports, however, up to now no increases in leukemia or other malignant deceases were observed, neither in the population of the concerned regions nor among the liquidators. The high (exp 137)Cs activity concentration in the environment close to the power plant result in exclusion zone even today. The deposition values in Kiev, however, amount to only 30 kBq/m(exp 2), in large areas of Ukraine they are below the average values in Austria of 22 kBq/m(exp 2). For these areas as well as those outside the former Soviet Union the average doses were less than 1 mSv in the first year, a value which is less than one third of natural annual radiation exposure. Since the reactor accident the activity concentration has significally decreased resulting in an exposure as consequence of the reactor accident of less than 0,8% of the exposure in the first year. In Austria the exposure in 1996 amounts to less than 0,3% of natural radiation exposure.

DOE

Radiation Dosage; Exposure; Health; Safety; Radiation Protection

19980236458 Atomic Energy Control Board, Group of Medical Advisers, Ottawa, Ontario Canada

Guidelines on the use of stable iodine as a prophylactic measure during nuclear emergencies ***Lignes directrices sur l'utilisation de l'iode stable comme mesure prophylactique en cas d'urgence nucleaire***

Jan. 1996; 39p; In French

Report No.(s): INFO-0587F; GCM-9.; DE98-604733; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

Among the fission products that may be released in a power reactor accident the radioiodines are unique in that the dose received by persons exposed by inhalation of radioiodines in the gaseous plume may be substantially reduced. GMA-9 provides guidance on the medical aspects of the use of stable iodine compounds as a prophylactic measure in the event of a nuclear accident. A review of the physiologic basis for the use of stable iodine as a prophylactic measure and the effects of radiation on the thyroid gland are provided. Logistic factors that must be considered to provide the optimum level of radiological protection and medical safety are also addressed. Due to the delay in publishing the French version of this report, some sections of this report have been updated to reflect current practices.

DOE

Stability; Iodine; Iodine Compounds; Emergencies; Radiation Protection; Radiation Effects

19980236463 International Society for Optical Engineering, Bellingham, WA USA

Proceedings of Laser-Tissue Interaction 9, Volume 3254

Jan. 1998; 526p; In English; 9th; Laser-Tissue Interaction, 26-28 Jan. 1998, San Jose, CA, USA

Report No.(s): AD-A352043; No Copyright; Avail: CASI; A23, Hardcopy; A04, Microfiche

The papers appearing in this book comprise the proceedings of the Laser Tissue Interaction IX.

DTIC

Lasers; Electromagnetic Interactions; Solid State Devices

19980236464 International Society for Optical Engineering, Bellingham, WA USA

Proceedings of Applications of Ultrashort-Pulse Lasers in Medicine and Biology, Volume 3255

Jan. 1998; 130p; In English; Applications of Ultrashort-Pulse Lasers in Medicine and Biology, 29-30 Jan. 1998, San Jose, CA, USA

Report No.(s): AD-A352044; No Copyright; Avail: CASI; A07, Hardcopy; A02, Microfiche

The papers appearing in this book comprise the proceedings of the Applications of the Ultrashort-Pulse Lasers in Medicine and Biology.

DTIC

Pulsed Lasers; Laser Applications; Optical Relay Systems

19980236563 Atomic Energy Control Board, Group of Medical Advisers, Ottawa, Ontario Canada

Guidelines on the medical management of tritiated water overexposures ***Lignes directrices pour la prise en charge medicale des personnes surexposees a l'eau tritiee***

Apr. 1996; 29p; In French

Report No.(s): INFO-0586F; GCM-7.; DE98-604732; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

The Medical Advisers to the Atomic Energy Control Board provide advice to occupational and family physicians treating overexposed workers. GMA-7 provides information and guidance to medical practitioners on the medical management of individuals who have been overexposed to tritiated water. Various treatment principles are presented with special emphasis on techniques for facilitating removal of tritiated water from the body so as to reduce the total radiation dose. Risks and biological effects from exposures to tritiated water and various radiation protection precautions are also discussed.

DOE

Water Management; Water; Radiation Protection; Physicians; Exposure; Tritium

19980236587 Lehigh Univ., Dept. of Electrical Engineering and Computer Science, Bethlehem, PA USA

Regional registration of texture images with application to mammogram followup

Brzakovic, D., Lehigh Univ., USA; Vujovic, N., Lehigh Univ., USA; Image Registration Workshop Proceedings; Nov. 1997, pp. 167-174; In English; Also announced as 19980236569

Contract(s)/Grant(s): NSF IRI-95-04363; DAMD17-96-1-6128; No Copyright; Avail: CASI; A02, Hardcopy; A03, Microfiche

The work is motivated by the problem of mammogram screening based on comparisons between mammograms of the same patient acquired in different screenings. Misregistration between temporally spaced screenings arises from minor differences in 3-D positioning and compression, as well as, normal changes in tissue that are functions of time. Since the relationship between images cannot be modeled with available information, precise registration and pixel-to-pixel comparison is an intractable problem. Instead, this work proposes defining corresponding regions in two images and carrying out comparisons between them, simi-

lar to what is done by medical experts. The locations of the regions are determined based on the locations of identifiable landmark points, and regions' extents are determined by characteristics of the older mammogram.
Author
Pattern Registration; Image Processing; Textures; Mammary Glands; Radiography

19980236591 Carnegie-Mellon Univ., Pittsburgh, PA USA
Anomaly detection through registration
Chen, Mei, Carnegie-Mellon Univ., USA; Kanade, Takeo, Carnegie-Mellon Univ., USA; Pomerleau, Dean, Carnegie-Mellon Univ., USA; Rowley, Henry A., Carnegie-Mellon Univ., USA; Image Registration Workshop Proceedings; Nov. 1997, pp. 201-210; In English; Also announced as 19980236569; No Copyright; Avail: CASI; A02, Hardcopy; A03, Microfiche

We study an application of image registration in the medical domain. Based on a 3-D hierarchical deformable registration algorithm, we developed a prototype for automatic registration of a standard atlas to a patient's data to create a customized atlas. The registration algorithm can also be applied to detect asymmetry in the patient data to help indicate the existence and location of any pathology. We have conducted experiments on 11 MRI scans of normal brains, 3 MRI and 1 CT scan of brains with pathologies.
Author
Algorithms; Anomalies; Pattern Registration; Image Processing; Matching

19980236592 Pennsylvania Univ. Medical Center, Dept. of Neurology, Philadelphia, PA USA
On matching brain volumes
Gee, James C., Pennsylvania Univ. Medical Center, USA; Image Registration Workshop Proceedings; Nov. 1997, pp. 211-220; In English; Also announced as 19980236569
Contract(s)/Grant(s): USPHS-RO-1-NS-33662; No Copyright; Avail: CASI; A02, Hardcopy; A03, Microfiche

To characterize the complex morphological variations that occur naturally in human neuroanatomy so that their confounding effect can be minimized in the identification of brain structures in medical images, a computational framework has evolved in which individual anatomies are modeled as warped versions of a canonical representation of the anatomy, known as an atlas. to realize this framework, the method of elastic matching was invented for determining the spatial mapping between a 3-D image pair in which one image volume is modeled as an elastic continuum that is deformed to match the appearance of the second volume. In this paper, we review the primary concepts underlying the elastic matching, consider the implications of an integral formulation of the problem on its solution, and explore a more general Bayesian interpretation of the method in order to address issues that are otherwise difficult or unnatural to resolve within a continuum mechanical setting, including the examination of a solution's reliability or the incorporation of empirical information that may be available about the spatial mappings into an analysis.
Author
Image Processing; Matching; Pattern Registration; Bayes Theorem; Finite Element Method; Brain

19980236601 University Hospital, Lab. of Functional and Multidimentional Imaging, Geneva, Switzerland
Assessment of neurological function through the multidimensional integration of invasive and non-invasive modalities or sensors
Bidaut, Luc, University Hospital, Switzerland; deTribolet, Nicolas, University Hospital, Switzerland; Landis, Theodor, University Hospital, Switzerland; Scherrer, Jean-Raoul, University Hospital, Switzerland; Terrier, Francois, University Hospital, Switzerland; Image Registration Workshop Proceedings; Nov. 1997, pp. 293-298; In English; Also announced as 19980236569; No Copyright; Avail: CASI; A02, Hardcopy; A03, Microfiche

All digital information available at various stages of neurological investigation has been totally integrated through the implementation of IMIPS (Integrated Multidimensional Imaging and Processing System) in a common multisensor space which can be navigated at will. All modern modalities (Computed Tomography, Magnetic Resonance Imaging, Single Photon Emission Computed Tomography, Positron Emission Tomography, functional MRI, and also Electro-Encephalo-Graphy and Electro-Magnetic Tomography) can be combined through our system for the investigation of normal or abnormal brain morphology and function. Although the potential is obviously tremendous for the study of normal brains, we initially targeted the pre-surgical evaluation of drug-resistant epilepsy and the planning or monitoring of subsequent surgery. Compared to the studying of normal function, the complete handling of this pathology drove us to also incorporate in our approach to invasive electro-physiological investigation means (such as depth electrodes and strips or grids) and also slides taken during surgery.
Author
Neurology; Brain; Digital Data; Image Processing; Imaging Techniques

19980236605 Katholieke Univ. te Leuven, Lab. for Medical Imaging Reseach, Belgium

Clinical relevance of fully automated multimodality image registration by maximization of mutual information

Maes, Frederik, Katholieke Univ. te Leuven, Belgium; Vandermeulen, Dirk, Katholieke Univ. te Leuven, Belgium; Marchal, Guy, Katholieke Univ. te Leuven, Belgium; Suetens, Paul, Katholieke Univ. te Leuven, Belgium; Image Registration Workshop Proceedings; Nov. 1997, pp. 323-330; In English; Also announced as 19980236569; Sponsored in part by IBM Belgium

Contract(s)/Grant(s): NFWO-3.0115.92; NFWO-9.0033.93; NFWO-G.3115.92; No Copyright; Avail: CASI; A02, Hardcopy; A03, Microfiche

We have developed a very general and powerful algorithm for fully automated affine geometric registration of three-dimensional (3D) multimodality images based on maximization of mutual information of the gray-values of corresponding voxels. The robustness and subvoxel accuracy of the method has been validated extensively for matching of CT, MR and PET brain images. In this paper, we illustrate the clinical usefulness of the approach by showing results for various clinical applications, such as matching of CT and PET images of the thorax and of CT and MR images of the prostate. Our results demonstrate that the generality and robustness of the method and the fact that it does not require any pre-processing of the images or user interaction make it a useful tool in routine clinical practice.

Author

Clinical Medicine; Image Processing; Pattern Registration; Algorithms

19980236606 Texas Technological Univ., Dept. of Electrical Engineering, Lubbock, TX USA

A robust generalized registration technique for multi-sensor and warped images

Dickens, Molly, Texas Technological Univ., USA; Neeruganti, Jagadeesh, Texas Technological Univ., USA; Mitra, Sunanda, Texas Technological Univ., USA; O'Hair, Edgar, Texas Technological Univ., USA; Image Registration Workshop Proceedings; Nov. 1997, pp. 331-334; In English; Also announced as 19980236569

Contract(s)/Grant(s): MTC-S7701E; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

Registration of multi-sensor and warped images poses difficult problems when control point pairs are not precisely known. The cepstrum registration technique has been used successfully in combination with polynomial warping for registering and finding the disparity between sequential images. Recently, synthetic aperture radar (SAR) as well as infra-red (IR) images have been registered by cepstrum techniques. The advantage of this robust area-based technique is that it is more tolerant to noise and rotational shift as well as being less computationally intensive than the traditional correlation measure techniques including the sequential search algorithms. We are currently developing a unified and automated registration algorithm for multi-sensor (SAR, IR, and Electro-optic) image registration. A comparative review of the current algorithms for registration of multi-sensor and sequential images corrupted by warping and other artifacts such as embedded noise patterns and random noise is presented.

Author

Image Processing; Pattern Registration; Algorithms; Warpage; Cepstral Analysis

19980236609 Max-Planck-Inst. fuer Neurologische Forschung, Lindenthal, Germany

Alignment of functional and anatomical tomograms based on automated and real-time interactive procedures

Pietrzyk, Uwe, Max-Planck-Inst. fuer Neurologische Forschung, Germany; Thiel, Alexander, Max-Planck-Inst. fuer Neurologische Forschung, Germany; Lucht, Helmut, Max-Planck-Inst. fuer Neurologische Forschung, Germany; Schuster, Alexander, Max-Planck-Inst. fuer Neurologische Forschung, Germany; Image Registration Workshop Proceedings; Nov. 1997, pp. 353-356; In English; Also announced as 19980236569; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

A hybrid technique for medical image registration is presented combining automated and interactive procedures. Subsequent transformation steps were combined into a single transformation during the alignment of several individual PET scans, whose average image was then aligned with respect to a MR image. Thus, only a single reslicing of all PET and MR data is required avoiding multiple interpolations and averaging of the data. Visual control of all steps is guaranteed throughout the entire procedure, which can be performed in less then 10 min. including the final visual control.

Derived from text

Image Processing; Pattern Registration; Visual Control; Real Time Operation; Clinical Medicine; Image Enhancement; Interactive Control; Imaging Techniques

19980236833 Slovak Medical Association, Society of Nuclear Medicine and Radiation Hygiene, Bratislava, Czechoslovakia

19th Radiation Hygiene Days

1995; 208p; In English; 19th; Radiation Hygiene Days (Rhd) Jasna, 20-23 Nov. 1995, Jasna Pod Chopkom, Slovakia

Report No.(s): INIS-SK-97-001; CONF-9511264; DE98-604320; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)); US Sales Only, Microfiche

The publication has been set up as a proceedings of the conference dealing with health protection during work with ionizing radiation for different activities which involve the handling of ionizing radiation sources. The proceedings consists of a following chapters: (1) Invited presentation; (2) Nuclear accident: management and instrumentation; (3) Low activity in environmental; (4) Radon: sources, doses and effects; (5) Radiation protection in nuclear medicine; (6) Nuclear power plants: radiation safety.
DOE
Conferences; Health; Radiation Protection; Radiation Sources

19980236948 NASA Langley Research Center, Hampton,VA USA
Aerospace Medicine and Biology: A Continuing Bibliography with Indexes, Supplement 478
Nov. 16, 1998; 25p; In English
Report No.(s): NASA/SP-1998-7011/SUPPL478; NAS 1.21:7011/SUPPL478; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

This supplemental issue of Aerospace Medicine and Biology, A Continuing Bibliography with Indexes (NASA/SP-1998-7011) lists reports, articles, and other documents recently announced in the NASA STI Database. In its subject coverage, Aerospace Medicine and Biology concentrates on the biological, physiological, psychological, and environmental effects to which humans are subjected during and following simulated or actual flight in the Earth's atmosphere or in interplanetary space. References describing similar effects on biological organisms of lower order are also included. Such related topics as sanitary problems, pharmacology, toxicology, safety and survival, life support systems, exobiology, and personnel factors receive appropriate attention. Applied research receives the most emphasis, but references to fundamental studies and theoretical principles related to experimental development also qualify for inclusion. Each entry in the publication consists of a standard bibliographic citation accompanied, in most cases, by an abstract.
CASI
Aerospace Medicine; Bibliographies; Bioastronautics; Biological Effects; Exobiology; Indexes (Documentation)

53
BEHAVIORAL SCIENCES

Includes psychological factors; individual and group behavior; crew training and evaluation; and psychiatric research.

19980236499 Naval Postgraduate School, Monterey, CA USA
Determinants of Flight Training Performance: Naval Academy Classes of 1995-1996, *1995-1996*
Reinhart, Paul M., Naval Postgraduate School, USA; Aug. 1998; 95p; In English
Report No.(s): AD-A352509; No Copyright; Avail: CASI; A05, Hardcopy; A01, Microfiche

This thesis investigates the relationship between observable characteristics and performance during the primary phase of flight training. The data for this study consists of 272 observations from Naval Academy graduates in the classes of 1995 and 1996. Analysis of the variables was conducted using the Heckinan two-stage regression technique to correct for possible selectivity bias. In this technique the first- stage probit model, which predicts the likelihood of primary phase completion, is used to generate a correction factor for possible selectivity bias. The correction factor is then used in the second-stage adjusted least-squares regression model. The conclusions from this study are: The biographical inventory from the Aviation Selection Test Battery(ASTB) is a valid predictor of primary phase completion. The Pilot Flight Aptitude Rating(PFAR) from the ASTB, academic achievement(AQPR) at the Naval Academy, and previous flight experience are valid predictors of flight training performance. Additionally, it appears that sample selection bias does not seem to be a problem in this analysis.
DTIC
Flight Training; Selection; Performance Prediction; Ratings; Universities

54
MAN/SYSTEM TECHNOLOGY AND LIFE SUPPORT

Includes human engineering; biotechnology; and space suits and protective clothing. For related information see also 16 Space Transportation.

19980232012 NASA Ames Research Center, Moffett Field, CA USA
The Effects of Longitudinal Control-System Dynamics on Pilot Opinion and Response Characteristics as Determined from Flight Tests and from Ground Simulator Studies
Sadoff, Melvin, NASA Ames Research Center, USA; Oct. 1958; 66p; In English

Report No.(s): NASA-MEMO-10-1-58A; No Copyright; Avail: CASI; A04, Hardcopy; A01, Microfiche

The results of a fixed-base simulator study of the effects of variable longitudinal control-system dynamics on pilot opinion are presented and compared with flight-test data. The control-system variables considered in this investigation included stick force per g, time constant, and dead-band, or stabilizer breakout force. In general, the fairly good correlation between flight and simulator results for two pilots demonstrates the validity of fixed-base simulator studies which are designed to complement and supplement flight studies and serve as a guide in control-system preliminary design. However, in the investigation of certain problem areas (e.g., sensitive control-system configurations associated with pilot- induced oscillations in flight), fixed-base simulator results did not predict the occurrence of an instability, although the pilots noted the system was extremely sensitive and unsatisfactory. If it is desired to predict pilot-induced-oscillation tendencies, tests in moving-base simulators may be required. It was found possible to represent the human pilot by a linear pilot analog for the tracking task assumed in the present study. The criterion used to adjust the pilot analog was the root-mean-square tracking error of one of the human pilots on the fixed-base simulator. Matching the tracking error of the pilot analog to that of the human pilot gave an approximation to the variation of human-pilot behavior over a range of control-system dynamics. Results of the pilot-analog study indicated that both for optimized control-system dynamics (for poor airplane dynamics) and for a region of good airplane dynamics, the pilot response characteristics are approximately the same.

Author

Pilot Induced Oscillation; Flight Tests; Human Behavior; Flight Simulators; Dynamic Response

19980232065 Colorado State Univ., Dept. of Environmental Health, Fort Collins, CO USA

Methodology for the Sizing and Design of Protective Helmets Using Three-Dimensional Anthropometric Data

Elliott, Michael G.; Aug. 17, 1998; 238p; In English

Report No.(s): AD-A351452; AFIT-98-023D; No Copyright; Avail: CASI; A11, Hardcopy; A03, Microfiche

This research was an investigation into the development of a methodology for the design and sizing of protective headgear using three-dimensional surface anthropometric data. This introductory chapter has five major parts: background, problem statement, research objective, user needs, and data source. Chapter 2 is a literature review of relevant publications of the design and sizing of protective headgear. Chapter 3 describes the basis for the design and sizing methodology presented in this dissertation. Chapter 4 discusses the computer programs developed for the determination of vectors from a midpoint in the head to the surface points. The computer programs are used in the design and sizing methodology. Chapter 5 describes the results of the statistical analysis performed on these vectors of the head for design and sizing of protective headgear. Chapter 6 provides a summary and the conclusions of this research.

DTIC

Helmets; Anthropometry; Size (Dimensions)

19980232070 Edgewood Research Development and Engineering Center, Aberdeen Proving Ground, MD USA

Performance Evaluation of the Self-Contained Toxic Environment Protective Outfit - Interim (STEPO-I) System *Final Report, Mar. - Jun. 1990*

Weiss, Robert A.; Gardner, Paul D.; Sherwood, Craig M.; Jul. 1998; 35p; In English; Prepared in cooperation with Chemical Stockpile Emergency Preparedness Program Office. Sales Order No. GOGX.

Contract(s)/Grant(s): Proj. 1S463747D669

Report No.(s): AD-A351792; ERDEC-TR-504; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

A quantitative protection factor (PF) evaluation was conducted on the Interim Self-Contained Toxic Environment Protective Outfit (STEPO-I). The STEPO-I is a protective ensemble consisting of a fully encapsulating suit with two alternative breathing and cooling systems. The suit is made of an impermeable, butyl rubber-coated nylon. The respirators consist of a closed-circuit breathing apparatus and a tethered airline emergency breathing apparatus. The closed-circuit breathing apparatus is worn with a battery-powered ice vest to provide cooling. The tethered air line emergency breathing apparatus vents a portion of the airline pressure to the wearers' extremities for blown-air cooling. Quantitative PF testing was conducted on each of the respirators and on the suit. Protection factor testing of the breathing apparatuses was conducted without the encapsulating suit to ensure a uniform challenge atmosphere. Both respirators performed very well due to their positive pressure. The suit was tested while worn over each of the respirators. The results showed that the vented air in the tethered airline mode provided a high degree of protection inside the suit. However, the closed circuit breathing apparatus does not vent off much air, and it was discovered that a significant flow of the challenge aerosol was entering the suit while in this mode.

DTIC

Performance Tests; Toxicity; Environments; Protection

19980232158 ILC Dover, Frederica, DE USA

NASA Research Announcement for Space Suit Survivability Enhancement ***Final Report, 17 Sep. 1997 - 30 Sep. 1998***

Fredrickson, Thad H., ILC Dover, USA; Ware, Joanne S., ILC Dover, USA; Lin, John K., ILC Dover, USA; Pastore, Christopher M., Philadelphia Coll. of Textiles and Science, USA; Sep. 25, 1998; 81p; In English; Original contains color illustrations; In response to NASA Research Announcement 96-OLMSA-01B

Contract(s)/Grant(s): NASw-97014

Report No.(s): Rept-1275; No Copyright; Avail: CASI; A05, Hardcopy; A01, Microfiche

This report documents the research activities for space suit survivability material enhancements. Self-sealing mechanisms for the pressure envelope were addressed, as were improvements in materials for cut, puncture, and hypervelocity impact resistance.

Author

Space Suits; Impact Resistance; Self Sealing; Fabrics

19980232171 Hokkaido Univ., Faculty of Engineering, Sapporo, Japan

Measurement of User's Action and Analysis in Human Interface Design

Nonaka, Hidetoshi, Hokkaido Univ., Japan; Da-Te, Tsutomu, Hokkaido Univ., Japan; Bulletin of the Faculty of Engineering, Hokkaido University; Jan. 1994; ISSN 0385-602X, No. 167, pp. 97-116; In Japanese; Copyright; Avail: Issuing Activity, Hardcopy, Microfiche

Measurement or detection of user's action is necessary for computer to communicate with user. But it is usually achieved with keyboard and mouse in uniform and inflexible manner, then user is obliged to practice in handling them in order to communicate fluently with computer. In this paper, we present new methods for measuring user's action, They are effective for making variety of communication, which makes human interface friendly. Firstly, ultrasonic position measuring method is introduced, and performance test of the method is discussed. Secondly the principle of video system with motor vision and its construction on an experimental basis are introduced. Thirdly detection method of lifting action is described and inertia mouse is introduced. Finally pointing systems using ultrasonic position measuring are realized. They are verified to be suitable for practical use by performance test.

Author

Detection; Human-Computer Interface

19980235207 Nissan Motor Co. Ltd., Yokosuka, Japan

Analysis of Optimum Seat Figure with Sitting Posture to Realize Seat Comfort

Katsuraki, Michihiro, Nissan Motor Co. Ltd., Japan; Nagashima, Hideyuki, Nissan Motor Co. Ltd., Japan; Nissan Technical Review Transaction; 1992; ISSN 0912-9634, pp. 23-30; In Japanese; Copyright; Avail: Issuing Activity, Hardcopy, Microfiche

This paper presents a combined pelvis-lumbar support which is intended to provide optimum body support from the standpoint of the human skeletal structure and internal stress. This support is an essential element of a car seat that fits the human body perfectly and thereby reduces passenger fatigue on long trips. An investigation was made of optimum sitting postures that would reduce stress on the lumbar region and differences in the optimum posture for various individuals were clarified. The results verified the effectiveness of the proposed pelvis-lumbar support in reducing passenger fatigue.

Author

Comfort; Seats; Posture; Sitting Position

19980235661 Edgerton, Germeshausen and Grier, Inc., Industrial Hygiene Branch, Cocoa Beach, FL USA

Remediation of Indoor Air Quality Concerns: Base Operations Building-Kennedy Space Center

Taffer, Jim, Edgerton, Germeshausen and Grier, Inc., USA; Geyer, Bart, Edgerton, Germeshausen and Grier, Inc., USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 156-160; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

The Base Operations Contractor (BOC) Industrial Hygiene (IH) Office has received employee complaints concerning Indoor Air Quality (IAQ) at the Base Operations Building (BOB) since the late 1980s. Complaints continued to increase and in 1994/1995 several personnel reported to medical clinics with symptoms related to IAQ. The IH Office performed extensive evaluations to determine humidity, temperature, carbon dioxide, ozone, formaldehyde, carbon monoxide, various hydrocarbons, and respirable dust levels. No source of reported symptoms was identified. In 1995 a questionnaire was submitted to personnel to identify personnel complaints and to identify specific problem areas: 62 of the 64 (97%) employees responded with 25 (40%) reporting symptoms and 37 (60%) reporting complaints, mostly related to temperature, humidity, or dust build-up. Due to these findings, a BOC working group (members represented the Medical Office, Industrial Hygiene, HVAC, Energy Management, Structures, and Janitorial

Departments) was formed to investigate this and other problem facilities. The group identified problems within this facility and offered corrective actions as follows: 1) Since HVAC systems on KSC are deactivated when facilities are not occupied, allowing humid air to enter air intakes, louvers were installed on air intakes which close when the system is deactivated. Humidity sensors were installed in the HVAC ducting which automatically activate when humidity levels exceed 60%; 2) to reduce dust deposition on horizontal surfaces in the facility, HEPA filter vacuums were purchased for the facility. Through time these vacuums should reduce respirable size dust, reducing personnel symptoms. One year later, the questionnaire was resubmitted. Only 17 (25%) of 67 personnel responded. Of those, 8 reported symptoms and 14 reported complaints attributed to IAQ. Complaints were mostly concerning temperature. Dust and humidity complaints were greatly reduced from the previous year. It is believed that most of those who did not respond no longer had complaints or symptoms. The number of personnel reporting to Medical with symptoms continues to decrease. Most personnel reporting symptoms or complaints work in one area of the facility. In this area old carpeting will be replaced to reduce contamination and the inner walls inspected for moisture build-up and mold growth.
Author
Indoor Air Pollution; Air Quality; Air Conditioning; Air Intakes; Humidity; Contamination; Dust; Industrial Safety

19980235665 NASA Lewis Research Center, Cleveland, OH USA
A Comparison of Lead Abatement Technologies at Lewis Research Center
Jeziorowski, Luz Y., NASA Lewis Research Center, USA; Calla, Joanne, NASA Lewis Research Center, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 172-174; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

In 1995, Lewis participated in a pilot test of Lead Specifications. The Specifications were sponsored by the Center to Protect Worker's Rights (CPWR). Entitled "Model Specifications for the Protection of Worker's from Lead on Steel Structures", one aspect of this endeavor was to test and compare several lead abatement technologies. The project overview, objectives, team, and requirements as well as abatement methods and materials are outlined.
Author
Personnel; Protection; Lead (Metal); Toxic Hazards; Hazardous Materials

19980235668 Science Applications International Corp., Cleveland, OH USA
Retrofitting Laboratory Fume Hoods With Face Velocity Monitors at NASA Lewis Research Center
Wagner, Ingrid E., Science Applications International Corp., USA; Bold, Margaret D., Bionetics Corp., USA; Diamond, David B., NASA Lewis Research Center, USA; Kall, Phillip M., NASA Lewis Research Center, USA; Proceeding from the 1997 NASA Occupational Health Conference: Achieving Quality in Occupational Health; Dec. 11, 1997, pp. 180-181; In English; Also announced as 19980235636; No Copyright; Avail: CASI; A01, Hardcopy; A03, Microfiche

Extensive use and reliance on laboratory fume hoods exist at LeRC for the control of chemical hazards (nearly 175 fume hoods). Flow-measuring devices are necessary to continually monitor hood performance. The flow-measuring device should he tied into an energy management control system to detect problems at a central location without relying on the users to convey information of a problem. Compatibility concerns and limitations should always be considered when choosing the most effective flow-measuring device for a particular situation. Good practice on initial hood design and placement will provide a system for which a flow-measuring device may be used to its full potential and effectiveness.
Derived from text
Fumes; Air Ducts; Exhaust Systems; Exhaust Gases; Industrial Safety; Monitors

19980236021 Michigan Univ., Transportation Research Inst., Ann Arbor, MI USA
Evaluation of a Driver Interface: Effects of Control Type (Knob Versus Buttons) and Menu Structure (Depth Versus Breadth), *Jan. - Nov. 1997*
Manes, Daniel, Michigan Univ., USA; Green, Paul, Michigan Univ., USA; Nov. 1997; 98p; In English
Contract(s)/Grant(s): DRDA-97-1142
Report No.(s): PB98-164700; UMTRI-97-42; No Copyright; Avail: CASI; A05, Hardcopy; A02, Microfiche

In an initial experiment, four drivers were verbally cued to find items in a menu system while driving a simulator. Three factors were examined: (1) menu structures (deep with three levels of four item each and, broad with two levels of eight items each), (2) controls (a cursor and a number pad), and (3) control/display locations (both high, both low, and display high/control low). The cursor control led to faster task completion times than the number pad, and a full 32 trials per block offered no benefit over just 16, simplifying the design of the main experiment. The main experiment was similar to the initial study, except 24 drivers participated, a knob control was used instead of the number pad, and 16 rather than 32 trials per block were used. Menu selection times (approximately nine seconds) were not significantly different for the two menu structures or the three control/display locations.

However, the knob was significantly faster than the cursor (six percent), and there were 13 percent more land excursions for the broad menus than the deep. A GOMS analysis showed that downward scrolls required 0.4 seconds each, except for initial selections where thinking and reading processes lengthened times. Correlations between GOMS and actual selection times ranged from 0.5 to 0.8. These data, suggest deep menus should be used to minimize lane excursions (a measure of driver distraction) and knobs should be utilized to minimize selection times. Mounting the display high and the control low is also advised.
Author
Simulators; Display Devices; Manual Control; Safety Devices; Accident Prevention; Vehicles

19980236439 Prairie View Agricultural and Mechanical Coll., Dept. of Electrical Engineering, TX USA
A Fuzzy Expert System for Fault Management of Water Supply Recovery in the ALSS Project ***Final Report***
Tohala, Vapsi J., Prairie View Agricultural and Mechanical Coll., USA; Apr. 30, 1998; 46p; In English
Contract(s)/Grant(s): NAG9-777
Report No.(s): NASA/CR-1998-208241; NAS 1.26:208241; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

Modeling with a new software is a challenge. CONFIG is a challenge and is design to work with many types of systems in which discrete and continuous processes occur. The CONFIG software was used to model the two subsystem of the Water Recovery system: ICB and TFB. The model worked manually only for water flows with further implementation to be done in the future. Activities in the models are stiff need to be implemented based on testing of the hardware for phase III. More improvements to CONFIG are in progress to make it a more user friendly software.
Derived from text
Fuzzy Systems; Fault Tolerance; Expert Systems; Water Management

19980236495 Army Aeromedical Research Lab., Fort Rucker, AL USA
Designing Optimal Hierarchies for Information Retrieval with Multifunction Displays ***Final Report***
Francis, Gregory, Army Aeromedical Research Lab., USA; Jul. 1998; 64p; In English
Contract(s)/Grant(s): Proj-30162787A879
Report No.(s): AD-A352470; USAARL-98-33; No Copyright; Avail: CASI; A04, Hardcopy; A01, Microfiche

Modern aircraft use computer screens with a push button interface to replace a variety of single purpose instruments. Such multifunction displays (MFDs) are gradually being introduced into military helicopters, with future aircraft likely to be highly dependent on computers. Studies have shown that poor design of MFD hierarchies has a significant impact on user satisfaction and performance. The purpose of this study was to extend a theoretical analysis of hierarchy search into a methodology for gathering data and building a hierarchy layout that minimized the time needed to find items in a hierarchy. Pilot studies demonstrate the effectiveness of the methodology and show that optimizing hierarchy layout may lead to a 25% reduction in search times.
DTIC
Human Factors Engineering; Flight Instruments; Airborne/Spaceborne Computers; Military Helicopters

19980236615 NASA Marshall Space Flight Center, Huntsville, AL USA
Development of a System to Assess Biofilm Formation in the International Space Station
Martin Charles, E., ION Systems, USA; Summers, Silvia M., ION Systems, USA; Roman, Monserrate C., NASA Marshall Space Flight Center, USA; 1998; 14p; In English; 28th; Environmental Systems (ICES), 13-16 Jul. 1998, Danvers, MA, USA
Report No.(s): NASA/TM-1998-207790; NAS 1.15:207790; Rept-980000; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

The design requirements for the water treatment systems aboard the International Space Station (ISS) include and require recycling as much water as possible and to treat the water for intentional contamination (hygiene, urine distillate, condensate, etc.) and unintentional contamination in the form of biofilm and microorganisms. As part of an effort to address the latter issue, a biofilm system was developed by Marshall Space Flight Center (MSFC) to simulate the conditions aboard ISS with respect to materials, flow rates, water conditions, water content, and handling. The tubing, connectors, sensors, and fabricated parts included in the system were chosen for specific attributes as applicable to emulate an orbital water treatment system. This paper addresses the design and development process of the system, as well as the configuration, operation, and system procedures for maintenance to assure that the simulation is valid for the representative data as it applies to water degradation and biofilm/microbial growth. Preliminary biofilm/microbial results are also presented.
Author
Water Treatment; International Space Station; Recycling; Microorganisms; Hygiene; Distillation; Contamination

19980236704 Edgewood Research Development and Engineering Center, Aberdeen Proving Ground, MD USA
Tests of Level A Suits, Protection Against Chemical and Biological Warfare Agents and Simulants: Executive Summary ***Final Report, Jun. 1997 - Apr. 1998***
Belmonte, Richard B., Edgewood Research Development and Engineering Center, USA; Aug. 1998; 15p; In English
Report No.(s): AD-A352316; ERDEC-TR-512; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

Twelve Level A protective suits were tested for GB and HD permeation swatch testing using modified procedures of TOP 8-2-501. Agent break-through times were calculated for each suit. Vapor and aerosol agent simulant tests of suit systems were conducted to measure overall protection factors of the suits.
DTIC
Protective Clothing; Protection; Vapors

19980236906 Georgia Inst. of Tech., Center for Human-Machine Systems Research, Atlanta, GA USA
Human-Centered Design of Human-Computer-Human Dialogs in Aerospace Systems ***Final Report***
Mitchell, Christine M., Georgia Inst. of Tech., USA; Aug. 1998; 7p; In English
Contract(s)/Grant(s): NCC2-824; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

A series of ongoing research programs at Georgia Tech established a need for a simulation support tool for aircraft computer-based aids. This led to the design and development of the Georgia Tech Electronic Flight Instrument Research Tool (GT-EFIRT). GT-EFIRT is a part-task flight simulator specifically designed to study aircraft display design and single pilot interaction. ne simulator, using commercially available graphics and UNIX workstations, replicates to a high level of fidelity the Electronic Flight Instrument Systems (EFIS), Flight Management Computer (FMC) and Auto Flight Director System (AFDS) of the Boeing 757/767 aircraft. The simulator can be configured to present information using conventional looking B757n67 displays or next generation Primary Flight Displays (PFD) such as found on the Beech Starship and MD-11.
Derived from text
Simulators; Flight Management Systems; Aircraft Design; Systems Management; Flight Instruments

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SPACE BIOLOGY

Includes exobiology; planetary biology; and extraterrestrial life.

19980236014 NASA Ames Research Center, Moffett Field, CA USA
Sixth Symposium on Chemical Evolution and the Origin and Evolution of Life
Acevedo, Sara, Editor, NASA Ames Research Center, USA; DeVincenzi, Donald L., Editor, NASA Ames Research Center, USA; Chang, Sherwood, Editor, NASA Ames Research Center, USA; Sep. 1998; 120p; In English, 17-20 Nov. 1997, Moffett Field, CA, USA; Sponsored by NASA, USA
Contract(s)/Grant(s): RTOP 344-38-00
Report No.(s): NASA/CP-1998-10156; A-9812411; NAS 1.55:10156; No Copyright; Avail: CASI; A06, Hardcopy; A02, Microfiche

The 6th Symposium on Chemical Evolution and the Origin and Evolution of Life was convened at NASA Ames Research Center, November 17-20, 1997. This Symposium is convened every three years under the auspices of NASA's Exobiology Program Office. All Principal Investigators funded by this Program present their most recent research accomplishments at the Symposium. Scientific papers were presented in the following areas: cosmic evolution of the biogenic elements, prebiotic evolution (both planetary and chemical), evolution of early organisms and evolution of organisms in extreme environments, solar system exploration, and star and planet formation. The Symposium was attended by over 200 scientists from NASA centers and Universities nationwide.
Author
Chemical Evolution; Biological Evolution; Planetary Evolution; Life Sciences

Subject Term Index

Personal Author Index

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